

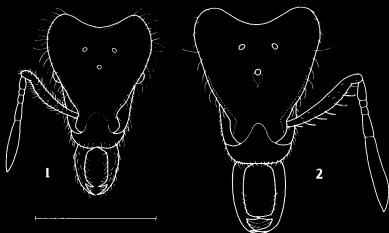
THE AUSTRALIAN WORKERLESS INQUILINE ANT, *STRUMIGENYS* *XENOS* BROWN (HYMENOPTERA- FORMICIDAE) RECORDED FROM NEW ZEALAND.

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Of the 1,200 or so Australian ant species only two are known definitely to be social parasites of other ants. One of these is *Strumigenys xenos* Brown (Subfamily Myrmicinae) (Fig. 1), a workerless inquiline found in colonies of the closely related *S. perplexa* (F. Smith) (Brown, 1955) (Fig. 2).

S. perplexa ranges from southeastern and southwestern Australia to Tasmania, Lord Howe Island, Norfolk Island and the North Island of New Zealand. It was first collected in New Zealand at Tairua, on the Coromandel Peninsula, in the early 1870's. Today it is known to occur throughout the North Island, and on various offshore islands including the Three Kings, Great Barrier, Little Barrier and Mayor Islands (Taylor, 1962). It is the only species of *Strumigenys* previously recorded from New Zealand. Brown (1958) believes that *S. perplexa* could be native to New Zealand, but that it was more likely introduced in historic times by man. The presence of this species in undisturbed and remote areas could indicate either that it is native, or that it has irrupted following introduction, and that it has been highly successful in New Zealand native forest habitats. These are, after all, not unlike the temperate rain forests which provide optimum conditions for *S. perplexa* in Australia. Such success by a forest dwelling immigrant species would be encouraged by the lack of competitors in the remarkably depauperate native New Zealand ant fauna. The early first record of *S. perplexa* in New Zealand indicates its presence for sufficient time to have allowed extensive dispersal. Also, transport of Australian cryptobiotic forest dwelling ants to New Zealand during the early days of European settlement, in soil-ballasted vessels, is a likely possibility (Taylor, 1967).



R. W. Taylor, *Strumigenys* sp.

Fig. 1. *Strumigenys xenos* female: frontal view of head, left antenna omitted.

Fig. 2. *Strumigenys perplexa* female: frontal view of head, right antenna omitted. Specimens from Clyde Mountain, N.S.W., Australia. Scale line = 0.5 mm.

The parasite, *S. xenos*, has been recorded previously only from Victoria, specifically from Warburton Range, Ferntree Gully and Arthur's Seat (Brown, 1955). Additional localities, all in New South Wales, are represented in the Australian National Insect collection as follows: Mt. Wilson, near Lithgow (22.v.1959, B. B. Lowery); Mt. Saddleback, near Kiama (19.xii.1961, B. B. Lowery); and Clyde Mountain, near Braidwood (2.iii.1967, R. W. Taylor and R. J. Bartell). I did not secure this species during a recent collecting visit to Lord Howe Island, when several *S. perplexa* colonies were examined for inquilines. The biology of *S. xenos* has been reviewed by Brown (1955). It is notable that the *S. perplexa* host queens of parasitised colonies are not destroyed by their own workers or by the parasitic queens, as is usual in other cases of ant colonies supporting workerless inquilines.

This paper records the presence of *S. xenos* in New Zealand for the first time. The record is based on a single dealate female taken

in a Berlese funnel sample of leaf-mould from native bush at Paihia, in the Bay of Islands district, (7.ii.1959, R. W. Taylor). The sample also included a dealate female and several workers of *S. perplexa*.*

Both *S. perplexa* and *S. xenos* could be native to New Zealand, but the successful trans-Tasman dispersal and establishment of both species without human assistance (i.e. either by rafting, or aerial dispersal of fertilised alate queens) would seem much less likely than their importation by man in an intact parasitised *S. perplexa* colony (which could presumably produce sexuals of both species). For this reason the presence of *S. xenos* in New Zealand strongly implies that *S. perplexa* is an introduced species. The possibility that *S. xenos* could have been introduced secondarily into an already existing native *S. perplexa* population must however be acknowledged.

Considering the geological history of New Zealand, both the host and parasite species must have immigrated across water, regardless of whether they travelled together or separately, with or without the aid of man. For this reason the case is of interest with reference to past debate concerning the zoogeography of other ant species and their inquiline parasites. It proves that trans-oceanic dispersal of such elements is possible.

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*Specimens in Australian National Insect Collection, C.S.I.R.O., Canberra. Australian material of *S. xenos* is deposited with Auckland Institute and Museum, and with Entomology Division, D.S.I.R., Nelson.